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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/656,811 06/03/96 BARTSCH D 50865/JPW/JM

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HM22/1129

EXAMINER

PAK, M

ART UNIT

PAPER NUMBER

1646

DATE MAILED:

11/29/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/656,811

Applicant(s)
Bartsch et al.

Examiner
Michael Pak

Group Art Unit
1646



☒ Responsive to communication(s) filed on Jul 1, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-28 is/are pending in the application.

Of the above, claim(s) 2, 7-14, 17, and 23-28 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1, 3-6, 15, 16, and 18-22 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Continued Prosecution Application

1. The request filed on 1 July 1999 (Paper No. 19) for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No.08/656,811 is acceptable and a CPA has been established. An action on the CPA follows.
2. The amendment filed on 1 July 1999 (Paper No. 20) and 5 February 1999 (Paper No. 14) have been entered.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Applicant's arguments filed 1 July 1999 (Paper No. 20) have been fully considered but they are not found persuasive.

Claim Rejections - 35 USC § 112

5. Claims 1, 3-6, 15-16, and 18-22 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Amendment to claim limitation "suffering from a long-term memory defect" is new matter, because the applicant did not point to support in the specification nor could the examiner find support for the subgeneric claim limitation. The original claims are generic to the presently amended claims and application is directed to specific putative species of claim limitations.

6. Claims 1, 3-6, 15-16, and 18-22 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for improving implicit long term memory in invertebrate animal subjects such as *Aplysia* and *Drosophila* using the methods as claimed, does not reasonably provide enablement for all subjects suffering from a long term memory defects. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

Applicants argue that long term facilitation in *Aplysia* is a long-accepted model for the study of long term memory in primates. Applicant argue that Bailey et al. (Ann. Rev. Physiol., 1993) teach that the model of gill and siphon withdrawal reflex of *Aplysia* by non-associative learning is capable of giving rise to short term memory and long-term memory. However, the reference does not create a nexus between the *Aplysia* model and all long term memory in primates. It should be noted that non-

associative learning of Aplysia is using a reflex of sensory neuron to motor synapse. The reference fails to establish a nexus between the myriad of memory function in primates including associative learning and the Aplysia model. The claims encompass all long term memory and the narrow scope of Aplysia model does not enable all long term memory as discussed in the previous office action.

Applicants argue that Bailey et al. (PNAS, 1996) disclose that an implicit form of memory storage in Aplysia is predictive model for memory storage in primates. Applicants cite the passage from the abstract that there is a conservation of steps in the mechanisms for learning-related synaptic plasticity which suggests the possibility of a molecular biology of cognition. However, the suggestion of possibility is not a direct nexus between the models for all long term memory as claimed. Bailey et al. (PNAS, 1996), page 13445, first column, last paragraph, teach that modern behavioral and biological studies have shown that leaning and memory are not a unitary process- not a single faculty of the mind- but a family of distinct processes, each with its own rules. Bailey et al. (PNAS, 1996), page 13445, first column, last paragraph, further teach that nonassociative forms are but one of several categories of implicit or nondeclarative memory which also includes simple associative forms. Bailey et al. (PNAS, 1996), page 13445, first column, last paragraph,

further teach that the analysis of memory is complicated by another category of explicit or declarative memory which is the conscious recall of memory as opposed to reflexes or unconscious memory. Bailey et al.(PNAS, 1996), page 13445, first column, last paragraph, further teach that explicit and implicit memory involve different neural circuits in the brain. It should be noted that invertebrates such as Aplysia (sea snail) and Drosophila (fruit fly) do not have a brain in the same sense as the mammals, vertebrates, or primates, but use series of interconnected ganglions which a clumps of nerve cells which control the specific region the ganglion is located such that there is a ganglion of nerve cells which control the gill or siphon withdrawal reflex. Bailey et al.(PNAS, 1996), page 13452, first column, next to the last paragraph, further teach that the apparent similarity in some of the molecular steps that underlie learning-related synaptic plasticity may reflect the fact that long-term memory for both implicit and explicit storage is associated with structural changes. The common mechanism in the second messenger process is the signaling for structural changes which is a small part of the overall long term memory process. The scope of the claim encompass all long term memory defects including cell deaths due to diseases such as Alzheimer's or Parkinson's in patients who does not have enough neuronal cells for the increased synaptic input which is possibly regulated by

cAMP since the dead neurons are not functional. It should also be noted that no nexus has been made to primates or diseases suffered by humans which have different etiology such as cell death.

Applicants argue that the Aplysia model would be predictive of the long-term memory storage in primates because Kandel et al. (JCP, 1997) concludes that the mechanisms used for storage of long-term memory may be conserved. However, Kandel et al., page 125, second column, first paragraph, also teach that there are differences in the long term potentiation within the Hippocampus cells in the early signaling which is part of memory storage although there is a common general signaling mechanism of cAMP activation. It should be noted that cAMP signaling is an ubiquitous signaling system in cells, the process of memory storage has many differences in detail. It should be noted that Kandel et al. (JCP, 1997) is reference published after the filing date.

As discussed in the previous office actions, Glanzman (TIN, 1995), page 35, first column, teach that our knowledge about this relatively simple form of learning might just scratch the surface of its neurobiological complexity. Glanzman further teach that one wonders just how long it will be before we have a realistic cellular model of one of the intensively studied forms of mammalian associative learning. Glanzman places doubt as to the

simplicity of the current Aplysia model and proposes a more complex model of the Aplysia model.

Claim Rejections - 35 USC § 102

7. Claims 1, 3-5 and 18-21 are rejected under 35 U.S.C. 102(a or b) as being anticipated by Yin et al.(1994) for the reasons set forth in the last office action.

The teachings of Yin et al. was discussed in the previous office actions.

Applicants argue that the dCREB2a and dCREB2b in Yin et al. is a CREB1. However, it should be noted that the specification on page 16, lines 13-21, defines "cAMP-response-element-binding - protein-2" to encompass variants and homologues which does not exclude the dCREB2a and dCREB2b of Yin et al. Furthermore, the claims are read in light of the specification and do not import the limitation of the specification into the claims. Furthermore, the claims are not limited by any specific structure. Applicants' reference of Yin et al.(1995) of exhibit 3 compares the sequences of CREB, CREM, and ATF-1. However, it is not uncommon for scientific references to compare known sequences available at the time of the invention. Furthermore, the reference of Yin et al.(1995) of exhibit 3 does not exclude the "cAMP-response-element-binding -protein-2" defined in the

Serial Number: 08/656,811
Art Unit: 1646

7

specification. Applicants' reference of Bartsch et al.(1998) of exhibit 4 compares the sequences of Aplysia CREB with other CREB sequences including the Drosophila of Yin et al. However, the reference is published after the filing date of the application and does not reflect the state of the art. Furthermore, the reference of Bartsch et al.(1998) of exhibit 4 does not exclude the "cAMP-response-element-binding -protein-2" defined in the specification.

8. No claims are allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pak, whose telephone number is (703) 305-7038. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Hutzell, can be reached on (703) 308-4310.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Michael D. Pak
Michael D. Pak
Patent Examiner
Art Unit 1646
29 September 1999